USGS
science for a changing world

http://astrogeology.usgs.gov

Earth

Third planet from the Sun

NASA/JPL/NIMA PIA03394

Earth is the only planet whose English name does not derive from Greek/Roman mythology. The name derives from old English and Germanic. There are, of course, hundreds of other names for the planet in other languages.

Orbit
Earth is 1 astronomical unit from the Sun. An astronomical unit is 92,955,807 million miles, which is 499 light seconds

Orbital Period
365.2 days

Length of Day
24 hours, or 1 day

Tilt of Rotation Axis
23.5 degrees

Size
Average Diameter: 7,918 miles or 12,740 km

Surface Gravity
32.1 ft/s^2 or 9.8 m/s^2

Structure
The Earth is composed of silicate rocks and iron. Its interior contains a core largely made of molten iron, surrounded by a thick mantle of partly molten rock (oxygen, silicon, magnesium and iron) , covered by a very thin surface crust (oxygen, silicon, aluminum and iron) that is solid and relatively cool. The Earth is the only planet with a known active plate tectonic system.

Surface Temperature
Mean temperature: 59° Fahrenheit
Temperature extremes: 136° Fahrenheit (Libya, 1922) to -128° Fahrenheit (Vostok Base, 1983)

Atmosphere
The atmosphere is primarily composed of nitrogen (N_2, 78%), xxygen (O_2, 21%), and argon (Ar, 1%). Earth's substantial atmosphere has weather patterns primarily driven by heat from the Sun. On Earth, however, another key factor in the climate is the water cycle, the continual cycling of water.

Moons
Number of Moons: 1

Core U.S. Government Research Agencies
The USGS (United States Geological Survey) was established by Congress in 1879 to provide geologic, topographic, and hydrologic information to the Nation. This information comprises maps, data bases, and reports containing analyses and interpretations of water, energy and mineral resources, land surfaces, geologic structures, natural hazards, and the dynamic process of the Earth.

NOAA (the National Oceanic and Atmospheric Administration) was formed in 1970 from agencies that are among the oldest in the Federal government. NOAA has as its mission to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs.

Measuring, Monitoring & Mapping
There have been numerous space-, air-, and water-borne instruments that have been important in mapping the Earth and learning more about our home planet as a dynamic system of water, geology, climate, air, and life. The following list is just a few of these remote sensing instruments and platforms:

The **ASTER** instrument on the Terra satellite is being used to obtain detailed images used for glacier monitoring, climatology, volcano monitoring, and a wide range of other purposes.

The **LANDSAT** satellite system has been gathering a collection of imagery covering most of the Earth's land surface and coastal regions for over 30 years.

Space Shuttle Radar Topography Mission completed Earth's most extensive and detailed global topographic map.

The **GOES** satellite system collects images used to monitor the weather and climate by a variety of scientists, including the meteorologists who prepare the weather report for the daily news.

The **GLORIA** sonar system was used to map the seafloor in the United States' Exclusive Economic Zone, a 200 nautical mile zone around the coasts of the U.S. and its territories and possessions.

The air-borne **AVIRIS** instrument collects *hyperspectral* images. The primary research done with AVIRIS data have been related to global environment and climate change.

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